

REMARKS

Reconsideration of the present application is respectfully requested. Claim 1 has been amended to incorporate the subject matter of claim 14, now canceled, and to specifically define the additives used in the claimed invention. The specification of the subject application does not indicate that the additive as recited in the previous claim 1 is a non-ionic surfactant. However, additives used in the present invention include SPAN80TM, BRIJ30TM, and NP20TM, (see specification at page 6) which are all non-ionic surfactants. "SPAN80" is sorbitan monooleate, and "BRIJ30" is polyoxyethylene(4) lauryl ether, both which are available from Sigma-Aldrich Co., as evidenced by copies of the relevant pages of the 2000-2001 catalog of Sigma-Aldrich Co., submitted herewith as Exhibit "A". "NP20" is ethoxylated nonyl phenol (with 20 EO's), as disclosed in U.S. Patent No., 5,316,664, issued in 1994, also submitted herewith as Exhibit "B".

As can be seen from their chemical name or structure, sorbitan monooleate (SPAN80TM), polyoxyethylene (4) lauryl ether (BRIJ30TM), and ethoxylated nonyl phenol (NP20TM) are all non-ionic. Therefore, even though the specification of the subject application (1) does not clearly state that the additive is a non-ionic surfactant, or (2) the generic chemical names of such non-ionic surfactants, a person of ordinary skill in the art would understand that the specific non-ionic surfactants, and their generic chemical names are within the scope of the specification as filed. Thus, the applicants submit that the specification of the subject application supports amended claim 1, and that no new matter is added at the present time.

As amended, the applicant submits that claim 1, and the claims depending from it, are in condition for allowance. The claimed invention distinguishes over U.S. Patent No. 6,635,189 to Suh et al. ("Cited Reference 1") and U.S. Patent No. 5,480,573 to Durfee et al. ("Cited Reference 2") in view of the following:

Suh et al. does not teach or suggest to adding an additive to an ER fluid in order to improve flow properties of the fluid and to prevent precipitation of particles in the fluid. Furthermore, Durfee et al. does not teach to add a surfactant to an ER fluid, and it only describes in column 2, lines 17-21 that "U.S. Patent No. 5,032,307 teaches an ER material containing a carrier fluid, an anionic surfactant particle component, and an activator. The non-abrasive anionic surfactant acts as both a particle component and a surfactant..." Thus, even if Durfee et al. teaches adding a surfactant to an ER fluid by mentioning the disclosure of U.S. Patent No. 5,032,307, it merely teaches to use an anionic surfactant acting as both a particle component and a surfactant. That is, it does not teach the use of non-ionic surfactants as disclosed and claimed herein.

Therefore, it is submitted that Suh et al. in view of Durfee et al. does not teach or suggest the claimed ER fluid comprising less than 1 wt% (excluding 0 wt%) of non-ionic surfactant selected from the Markush group set forth in claim 1 (or mixtures thereof) for improving flow properties of the fluid and for preventing precipitation of particles in the fluid as an essential component.

Wherefore, based upon the foregoing, it is submitted that the present application is in condition of allowance and a relatively early reply to this paper would be appreciated.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'RD' or similar, written in a cursive style.

Richard J. Danyko
Registration No. 33,672

Scully, Scott, Murphy & Presser
400 Garden City Plaza, Suite 300
Garden City, New York 11530
(516) 742-4343

RJD:ej



Aldrich

Handbook of Fine Chemicals and Laboratory Equipment

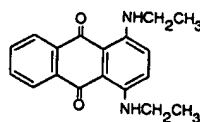


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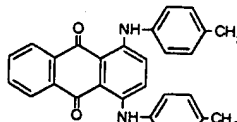
■ Boron trif

43,428-0	Boron trifluoride-tetrahydrofuran complex [462-34-0] $\text{BF}_3 \cdot \text{THF}$ FW 139.91	100mL	\$ 16.30	46
★	mp -123° bp 180° d 1.268 Fp 198°F(92°C) CORROSIVE Used extensively as a polymerization initiator. <i>Vysokomol. Soedin., Ser. A Ser. B</i> 1995, 37, 554, 1838. <i>Macromolecules</i> 1995, 28, 3002. Contains >0.5% SO_2 to suppress peroxide formation	500mL	40.40	
30,762-9	Boron triiodide, 98+% [13517-10-7] BI_3 FW 391.52 d 3.350 <i>Fieser</i> 9,65	1g	22.90	21
★	R&S 1(3),3353A CORROSIVE MOISTURE-SENSITIVE	5g	70.90	
		25g	282.80	23
	Boron trioxide, see Boron oxide			
18,339-3	Boron tris(trifluoroacetate), 1.0M solution in trifluoroacetic acid [350-70-9]	100mL	185.50	20
	$(\text{CF}_3\text{CO}_2)_3\text{B}$ FW 349.86 d 1.521 Fp none <i>Fieser</i> 4,46 5,55 <i>Safety</i> 2,485A CORROSIVE MOISTURE-SENSITIVE			
34,689-6	Bottle-cap sealing wax mp 73-75°	250g	14.80	20
	Specially formulated for sealing bottle caps for storage of air- and moisture-sensitive corrosive samples.	500g	23.60	
	BPB, see Bromophenol Blue			
	BPCC, see 23,674-8, 2,2'-Bipyridinium chlorochromate page 189			
	BPEA, see 26,419-9, 9,10-Bis(phenylethynyl)anthracene page 216			37
	BPSCCO 2223, see 37,872-0, Bismuth lead strontium calcium copper oxide page 211			
	bpy, see D21,630-5, 2,2'-Dipyridyl page 708			86
	Brass, see Copper-zinc alloy			
	Brassylic acid, see U60-1, 1,11-Undecanedicarboxylic acid page 1715			
	Brazil wax, see 24,321-3, Carnauba wax page 348			
	Bredereck's Reagent, see 38,421-6, <i>tert</i> -Butoxybis(dimethylamino)methane page 291			81
23,598-9	Brij® 30 [9002-92-0] [polyoxyethylene(4) lauryl ether] $\text{C}_{12}\text{H}_{25}(\text{OCH}_2\text{CH}_2)_4\text{OH}$,	5mL	11.20	2
★	n~4 n _D 1.4510 d 0.950 Fp >230°F(110°C) <i>Fieser</i> 1,892 <i>Merck Index</i> 12,7717 FT-IR 1(1),208B <i>Safety</i> 2,487D R&S 1(1),229D RTECS# JR5990000 IRRITANT Average M _n ca. 362. HLB 9.7	100mL	13.50	
		1L	49.80	
85,836-6	Brij® 35 [9002-92-0] [polyoxyethylene(23) lauryl ether] $\text{C}_{12}\text{H}_{25}(\text{OCH}_2\text{CH}_2)_{23}\text{OH}$,	5g	8.60	
★	n~23 Detergent for ion-exchange chromatography. Average M _n ca. 1,198. HLB 16.9	100g	9.60	
		500g	21.70	
		1kg	37.00	
38,883-1	Brij® 52 [9004-95-9] [polyoxyethylene(2) cetyl ether] $\text{C}_{18}\text{H}_{33}(\text{OCH}_2\text{CH}_2)_2\text{OH}$, n~2 n _D 1.4660 d 0.978 Fp >230°F(110°C) R&S 1(1),229F RTECS# TR1581470	100g	11.50	
★	Average M _n ca. 330. HLB 5.3	1kg	40.10	
38,885-8	Brij® 56 [9004-95-9] [polyoxyethylene(10) cetyl ether] $\text{C}_{18}\text{H}_{33}(\text{OCH}_2\text{CH}_2)_{10}\text{OH}$,	100g	11.50	
★	n~10 mp 32-34° d 0.977 Fp >230°F(110°C) R&S 1(1),229G RTECS# TR1581470 Average M _n ca. 683. HLB 12.9	1kg	40.10	
23,599-7	Brij® 58 [9004-95-9] [polyoxyethylene(20) cetyl ether] $\text{C}_{18}\text{H}_{33}(\text{OCH}_2\text{CH}_2)_{20}\text{OH}$,	5g	11.30	
★	n~20 mp 38-43° Fp >230°F(110°C) FT-IR 1(1),208C <i>Safety</i> 2,488B R&S 1(1),229H RTECS# TR1581470 Average M _n ca. 1,124. HLB 15.7	100g	11.70	
		500g	26.60	
38,888-2	Brij® 72 [9005-00-9] [polyoxyethylene(2) stearyl ether] $\text{C}_{18}\text{H}_{37}(\text{OCH}_2\text{CH}_2)_2\text{OH}$,	100g	11.50	
★	n~2 mp 44-45° d 0.893 Fp >230°F(110°C) R&S 1(1),229I RTECS# W16250000 Average M _n ca. 359. HLB 4.9	1kg	41.60	
38,889-0	Brij® 76 [9005-00-9] [polyoxyethylene(10) stearyl ether] $\text{C}_{18}\text{H}_{37}(\text{OCH}_2\text{CH}_2)_{10}\text{OH}$,	100g	11.50	
★	n~10 mp 37-39° d 0.964 Fp >230°F(110°C) R&S 1(1),229J RTECS# W16300000 Average M _n ca. 711. HLB 12.4	1kg	41.60	
23,600-4	Brij® 78 [9005-00-9] [polyoxyethylene(20) stearyl ether] $\text{C}_{18}\text{H}_{37}(\text{OCH}_2\text{CH}_2)_{20}\text{OH}$,	5g	10.40	
★	n~20 mp 44-46° Fp >230°F(110°C) FT-IR 1(1),208D <i>Safety</i> 2,488C R&S 1(1),229K RTECS# W16475000 IRRITANT Average M _n ca. 1,152. HLB 15.3	100g	12.20	
		500g	23.30	
38,886-6	Brij® 92 [9004-98-2] [polyoxyethylene(2) oleyl ether] $\text{C}_{18}\text{H}_{35}(\text{OCH}_2\text{CH}_2)_2\text{OH}$, n~2 n _D 1.4620 d 0.912 Fp >230°F(110°C) R&S 1(1),229L RTECS# RK2800000	100mL	14.10	
★	Average M _n ca. 357. HLB 4.9	1L	47.00	
43,128-1	Brij® 97 [9004-98-2] [polyoxyethylene(10) oleyl ether] $\text{C}_{18}\text{H}_{35}(\text{OCH}_2\text{CH}_2)_{10}\text{OH}$,	100mL	13.30	
★	n~10 Average M _n ca. 709. HLB 12.4	500mL	26.20	
43,624-0	Brij® 98 [9004-98-2] [polyoxyethylene(20) oleyl ether] $\text{C}_{18}\text{H}_{35}(\text{OCH}_2\text{CH}_2)_{20}\text{OH}$,	5g	10.90	
★	n~20 Average M _n ca. 1,150. HLB 15.3	100g	11.40	
		500g	26.30	

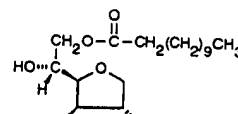
Solvent Blue 38, see 22,934-2, Luxol® Fast Blue MBSN page 1028			
22,912-1	★	Solvent Blue 59 [6994-46-3] [Atlasol Blue 2N, 1,4-bis(ethylamino)-9,10-anthraquinone, C.I. 61552, Sudan Blue] FW 294.36 mp 215-217° λ_{max} 640(595)nm Beil. 14(3),440 FT-NMR 1(3),554B Safety 2,3160D R&S 1(2),2771D UV-Vis 648 IRRITANT Dye content ~98%	25g
Solvent Brown 1, see 23,603-9, Fat Brown RR page 807			
Solvent Green 1, see 22,910-5, Malachite Green base page 1035			
21,198-2	★	Solvent Green 3 [128-80-3] (C.I. 61565) FW 418.50 mp 220-221° λ_{max} 644(607)nm Beil. 14,199 Merck Index 12,8251 FT-IR 1(2),1019C Safety 2,3161A R&S 1(2),2771F UV-Vis 649 RTECS# CB5775000 IRRITANT Dye content ~95%	50g
Solvent Green 7, see 8-Hydroxy-1,3,6-pyrenetrisulfonic acid, trisodium salt			
Solvent Green 11, see 27,726-6, Luxol® Brilliant Green BL page 1028			
Solvent Orange 1, see 19,967-2, Sudan Orange G page 1529			
Solvent Orange 2, see 34,466-4, Orange OT page 1253			
Solvent Orange 7, see 19,965-6, Sudan II page 1529			
Solvent Orange 15, see 23,547-4, Acridine Orange base page 33			
Solvent Red 19, see 20,161-8, Sudan Red 7B page 1530			
Solvent Red 23, see 19,811-0, Sudan III page 1529			
Solvent Red 24, see 19,810-2, Sudan IV page 1529			
Solvent Red 26, see 23,411-7, Oil Red EGN page 1251			
Solvent Red 27, see 19,819-6, Oil Red O page 1252			
Solvent Red 41, see 85,734-3, Basic Fuchsin page 143			
Solvent Red 43, see 23,025-1, Eosin Y, free acid page 732			
Solvent Red 44, see 19,955-9, Methyl Eosin page 1116			
Solvent Red 45, see 19,954-0, Ethyl Eosin page 775			
Solvent Red 49, see 23,414-1, Rhodamine B base page 1465			
Solvent Red 72, see 21,672-0, 4',5'-Dibromofluorescein page 523			
Solvent Violet 8, see 24,221-7, Methyl Violet B base page 1175			
Solvent Yellow 2, see 11,449-9, Methyl Yellow page 1176			
Solvent Yellow 3, see 12,156-8, Fast Garnet GBC base page 806			
Solvent Yellow 7, see 13,108-3, 4-Phenylazophenol page 1298			
Solvent Yellow 14, see 10,362-4, Sudan I page 1529			
Solvent Yellow 33, see 23,413-3, Quinoline Yellow page 1458			
Solvent Yellow 94, see F245-6, Fluorescein page 816			
Sorbic acid, see 2,4-Hexadienoic acid			
Sorbic aldehyde, see 18,034-3, 2,4-Hexadienal page 884			
31,821-3	★	Sorbitan monolaurate [1338-39-2] (Span® 20) FW 346.47 n _D 1.4740 d 1.032 Fp >230°F(110°C) Merck Index 12,8872 Safety 2,3162C R&S 1(1),759M RTECS# WG2920000 HLB 8.6	5mL 250mL 1L
38,891-2	★	Sorbitan monooleate [1338-43-8] (Span® 80) FW 428.62 n _D 1.4800 d 0.986 Fp >230°F(110°C) Merck Index 12,8872 R&S 1(1),761B RTECS# WG2932400 HLB 4.3	250mL 1L
38,892-0	★	Sorbitan monopalmitate [26266-57-9] (Span® 40) FW 402.58 mp 46-47° Fp >230°F(110°C) R&S 1(1),759N RTECS# WG2932900 IRRITANT HLB 6.7	250g 1kg
31,822-1	★	Sorbitan monostearate [1338-41-6] (Span® 60) FW 430.63 mp 56-58° Fp >230°F(110°C) Merck Index 12,8872 FT-NMR 1(1),1055A Safety 2,3163B R&S 1(1),761A RTECS# WG2933500 HLB 4.7	5g 250g 1kg



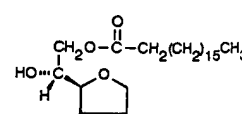
22,912-1



21,198-2



31,821-3



31,822-1

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